

REMARKS

Reconsideration of the application is requested in view of the above amendments and the following remarks. Claim 2 has been canceled and the limitations of claim 2 have been added to claim 1. Claims 3 and 4 have been amended to depend from claim 1. Claim 10 has been amended to correct formal matters. Claim 11 has been amended. The amendments to claim 11 are supported by at least Figures 2-4 of the present specification. New claims 20-23 have been added. Support for the new claims can be found in at least Figures 2-4 and original claims 1, 5 and 6. No new matter has been added.

Objections

The Abstract was objected to because it included more than the 150 word limit. The Abstract has been amended accordingly.

Claim 10 was objected to for the use of the term "comprising". Applicants respectfully traverse this objection. The term "comprising" is substantially equivalent in scope and meaning to the term "including". However, Applicants have followed the Examiner's suggestion to exchange "comprising" with the term "including" in claim 10.

§ 103 Rejections

Claims 1-19 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Charron (US 3,739,760). Applicants respectfully traverse this rejection.

Charron is directed to an auxiliary fuel-air supply system for an internal combustion engine. The response of the system depends on the engine coolant temperature and the motion and position of the carburetor throttle plate. The system includes a valve assembly 11 that regulates flow of enrichment fuel and air to the intake manifold 13. The assembly 11 includes a housing 29 in which two calibrated orifices 31 and 33 are formed. Fuel and air entering through inlets 35 and 39 mix in a chamber portion 37 and then move into the chamber portion 41 if the orifice 33 is open. A valve element 45 is positioned within the chamber 37 and is movable from a raised position in which the orifice 33 is open to a lower position in which the valve 45 closes off the orifice 33.

The valve 45 is coupled to a thermostat 57 via an abutment assembly 21. The abutment assembly 21 includes a lever 53 and a piston element 55. The piston element 55 extends from the thermostat 57 and is movable in a direction substantially perpendicular to a direction of motion of the valve 45. As the thermostat 57 is heated by engine coolant passing over an exposed end of the thermostat, the rod 55 extends thereby actuating the lever 53 and the valve 45 into a lowered position to close off the orifice 33.

Charron fails to disclose or suggest that the thermostat 57 includes "a liquid portion disposed within a flexible solid portion, and wherein said liquid portion expands with increasing temperature and contracts with decreasing temperature," as required by claim 1. In fact, Charron fails to disclose any specific design or structure for the thermostat 57 that would function to move the piston element 55. Because Charron fails to provide any disclosure or suggestion of the specific features required by claim 1, the rejection fails to set forth a prima facie case of obviousness. The rejection contends that the use of a liquid portion disposed within a flexible solid portion in a thermal expansion element would be a mere matter of design choice. However, the rejection fails to establish that such an innovative expansion element design would be possible or useful with the design disclosed by Charron. Further, Charron fails to suggest that there is even a need for such a design. Therefore, Charron fails to disclose or suggest every limitation of claim 1 and the claims that depend from it.

As to claim 11, Charron fails to disclose or suggest "providing a thermal expansion element coupled to said valve in a coaxial arrangement." As noted above, the thermostat 57 is aligned and actuates piston element 55 in a direction substantially perpendicular to the alignment and axis of the valve member 45. Therefore, Charron fails to disclose a coaxial arrangement as required by claim 11 and the claims that depend from it.

Charron also fails to disclose every limitation of claims 5 and 15. Charron discloses the use of an engine coolant for heating the thermostat 57. Charron fails to disclose or suggest a separate feature from the engine, such as the electric heater required by claims 5 and 15, to provide heat for a thermal expansion element. Therefore, claims 5 and 15 are allowable for this additional reason.

New Claims:

New claims 20-23 have been added and are directed to an auto enricher for an engine. New claim 20 requires that the valve is moveable "between a first position removed from the flow path," wherein the flow path is defined by an enriching conduit that passes fuel and air to an engine, to a "second position wherein the valve is positioned within the flow path to inhibit passage of fuel and air to the engine." As described above and shown in at least Figure 2 of Charron, the valve 45 of Charron is always positioned within the flow path of a fuel and air mixture through the chambers 37 and 41 of the conduit 13. Therefore, Charron fails to disclose every limitation of claim 20 and the claims that depend from it.


New claim 23 requires that the thermal expansion element expands and contracts in a direction "substantially the same as the direction of movement of the valve." Referring again to Figure 2 of Charron, the valve member 45 moves in a direction substantially perpendicular to the direction of motion of the piston element 55 of the thermostat 57. Therefore, Charron fails to disclose every limitation of claim 23.

In view of the above, Applicants request reconsideration of the application in the form of a Notice of Allowance.

Respectfully submitted,

MERCHANT & GOULD P.C.
P.O. Box 2903
Minneapolis, Minnesota 55402-0903
(612) 332-5300

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Joshua N. Randall
Reg. No. 50,719

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